

NON-PUBLIC?: N  
ACCESSION #: 9205110162  
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Peach Bottom Atomic Power Station - PAGE: 1 OF 05  
Unit 2

DOCKET NUMBER: 05000277

TITLE: Manual Scram and Primary Containment Isolation System Group  
II/III Isolations Following a Condensate Vent Line Failure  
EVENT DATE: 04/07/92 LER #: 92-006-00 REPORT DATE: 05/07/92

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 043

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR  
SECTION:  
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:  
NAME: Albert A. Fulvio, Regulatory TELEPHONE: (717) 456-7014  
Engineer

COMPONENT FAILURE DESCRIPTION:  
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:  
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On 4/7/92 at 0935 hours, the Floor Foreman reported a weld leak on a one inch vent line and that it could not be isolated during current plant conditions. At 0955 hours, the one inch vent line weld broke and a rapid shutdown was commenced in accordance with General Procedure GP-9-2 "FAST REACTOR POWER REDUCTION". At 1014 hours, a reactor scram was initiated during a fast power reduction at 43% power when the mode switch was placed in the "SHUTDOWN" position. A Primary Containment Isolation System (PCIS) Group II/III isolation occurred as expected due to the level decrease following the scram. The cause of the event has been determined to be the failure of a one inch vent line weld on a six inch condensate line. Metallurgical analysis showed that the weld failure was the result of metal fatigue due to high frequency vibration. Following the event, the scram and PCIS Group II/III isolation logics were reset. Affected

systems were restored to appropriate conditions as necessary. The failed one inch weld was repaired. An evaluation is being performed on similar drain and vent line configurations in this high vibration area on both units. No actual safety consequences occurred as a result of this event. One previous similar event has been identified.

END OF ABSTRACT

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#### Requirements for the Report

This report is submitted to satisfy the requirements of 10 CFR 50.73(a)(2)(iv) because of unplanned Engineered Safety Feature Actuations.

#### Unit Conditions at Time of Event

Unit 2 was in the RUN mode at 100% of rated thermal reactor (EII:RPV) power. Reactor power was reduced to 43% power at the time of the scram. There were no other systems, structures, or components that were inoperable that contributed to the event.

#### Description of Event

On 4/7/92 at 0925 hours, a System Engineer reported to the Control Room that a leak was observed in the Turbine Building on 116' elevation. The Control Room immediately dispatched a Floor Foreman (FF) (non-Licensed, Utility) to investigate the problem. At 0935 hours, the FF reported a weld leak on a one inch vent line and that it could not be isolated during current plant conditions. The vent line was connected to a six inch condensate line which provides cooling supply water to the Off Gas Recombiner (EII:WF) Condenser (EII:COND). At 0955 hours, the one inch vent line weld broke and a rapid shutdown was commenced in accordance with General Procedure (GP)-9-2 "FAST REACTOR POWER REDUCTION".

At 1014 hours, a reactor scram was initiated during a fast power reduction at 43% power when the mode switch was placed in the "SHUTDOWN" position. A Primary Containment Isolation System (PCIS)(EII:JM) Group II/III isolation occurred as expected due to the level decrease following the scram. The weld failure allowed condensate water to enter the Normal Waste Drain system which communicates with site storm drains. Immediately after condensate water was identified to be entering the Normal Waste Drains, surveys were performed of the site storm drains. The scram was reset at 1028 hours and the PCIS Group II/III isolations were reset at 1055 hours. The NRC was notified of the event via ENS at

1303 hours. Following the repair of the one inch condensate line weld, a plant startup was immediately commenced and power operation was achieved on 4/10/92.

Surveys indicate that no activity was present in the storm drains. It was estimated that approximately 20 gallons of condensate water was released to the Normal Waste Drains. A liquid sample was obtained from the condensate line which is assumed to be representative of the effluent released. This sample indicated that the actual activity release through the Normal Waste Drain was well below the limits specified in the Technical Specifications (Tech Specs).

#### Cause of Event

The cause of the event has been determined to be the failure of a one inch vent line weld (See Attached Drawing) on a six inch condensate line. The leak could not be isolated at power without removal of the Off Gas Recombiner system from service. Therefore, power reduction was commenced and a manual scram was initiated.

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Metallurgical analysis showed that the weld failure was the result of metal fatigue due to high frequency vibration. During normal system operation prior to 1990, the pressure controller sensing lines experienced pressure pulsations as the condensate cooling water system inlet pressure was reduced from as high as 700 psig down to 120 psig by a pressure control valve and by throttling the Manual Globe Valve. These pulsations caused several failures of pressure controllers. Prior to the 1990 operating procedure revision which reduced the system vibrations, pressure controller valve linkage failures were identified on the both Unit 2 and 3 pressure controllers (only one train was used during normal operation). The system operating procedures were revised in 1990 such that both pressure control valves are throttled to approximately 75% open. Both trains are now placed in service at the same time to reduce system vibration. The 6" manual globe valves directly downstream of the pressure control valves are now manually throttled to control the inlet pressure of condensate cooling water to the Off Gas Recombiner Condenser. In addition, condensate from the failed connection entered the Normal Waste Drains since the drains were not plugged.

#### Analysis of Event

No actual safety consequences occurred as a result of this event.

Even though the vent line break resulted in a manual reactor scram, Operations personnel were already performing a fast power reduction to minimize the effect. In addition, all automatic isolations and initiations functioned as designed.

It was estimated that approximately 20 gallons of condensate water was released to the Normal Waste Drains. A liquid sample was obtained from the condensate line and this sample is assumed to be a representative of the effluent released. This sample indicated that the actual activity release through the Normal Waste Drain were well below the limits specified in the Tech Specs.

#### Corrective Action

Following the event, the scram and PCIS Group II/III isolation logics were reset. Affected systems were restored to appropriate conditions as necessary. In addition, the actual activity released through the Normal Waste Drains was verified to be well below the limits specified in the Tech Specs. Subsequently, the failed one inch weld and other unrelated components were repaired.

Both trains are now placed inservice at the same time to reduce system vibration. The 6" manual globe valves directly downstream of the pressure control valves are now manually throttled to control the inlet pressure of condensate cooling water to the Off Gas Recombiner Condenser.

An evaluation is being performed on similar drain and vent line configurations in this high vibration area on both units.

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The concern of unplugged Normal Waste Drains was a previously identified issue. An evaluation is being performed which will include the effect on normal operations and the consequences of area flooding. Corrective actions will be implemented as necessary pending the results of the evaluation.

#### Previous Similar Events

One previous similar LER (3-90-008) has been identified which involved equipment failure due to vibrations and resulted in a manual scram to shutdown.

The corrective actions taken as a result of the previous LER involved the repair of a broken control valve linkage, a change to the system operating procedure which reduced component vibrations, and to review the

system design.

Since these corrective actions did not inspect or evaluate the effects of long term vibration on the system, it is not expected that these corrections could have prevented this event. Implementation of the corrective actions addressed above should prevent future recurrences.

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Figure omitted. (no title available)

ATTACHMENT 1 TO 9205110162 PAGE 1 OF 1

CCN # 92-14061

PHILADELPHIA ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION

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KEN POWERS

PLANT MANAGER May 7, 1992

Docket No. 50-277

Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

SUBJECT: Licensee Event Report  
Peach Bottom Atomic Power Station - Unit 2

This LER concerns a manual scram and Primary Containment Isolation System Group II/III isolations following a condensate vent line failure.

Reference: Docket No. 50-277  
Report Number: 2-92-006  
Revision Number: 00  
Event Date: 04/07/92  
Report Date: 05/07/92  
Facility: Peach Bottom Atomic Power Station

RD 1, Box 208, Delta, PA 17314

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(iv).

Sincerely,

cc: J. J. Lyash, USNRC Senior Resident Inspector  
T. T. Martin, USNRC, Region I

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